What Is Claimed Is:

1. An ultrasonic flow sensor, in particular for measuring the volumetric or mass flow of a fluid (1) flowing in a pipe (3) having at least one ultrasonic transducer (2a through 2n) for emitting and receiving ultrasonic signals (7, 9), characterized by
   - an array (2) of a plurality of ultrasonic transducers (2a through 2n) which is positioned on the pipe (3) and emits ultrasonic signals (7) which flow through the fluid (1),
   - a reflective surface (4) lying opposite the array (2), and
   - a receiver electronic system (6) which detects and evaluates an ultrasonic signal (9) reflected on the reflective surface (4) and received on the array (2).

2. The ultrasonic flow sensor as recited in Claim 1,
wherein the transducer array (2) is pulse operated.

3. The ultrasonic flow sensor as recited in Claim 1 or 2,
wherein an emission electronic system (5) is provided which can be used to activate the individual ultrasonic transducers (2a through 2n) individually and independently of one another.

4. The ultrasonic flow sensor as recited in Claim 3,
wherein the individual ultrasonic transducers (2a through 2n) are operated in such a way that an ultrasonic wave (7) is generated having an essentially cylindrical, spherical, ellipsoidal, or otherwise curved wave front.

5. The ultrasonic flow sensor as recited in one of Claims 1 through 3,
wherein the individual ultrasonic transducers (2a through 2n) are operated in such a way that an ultrasonic wave is generated having an essentially flat wave front.

6. The ultrasonic flow sensor as recited in one of the preceding claims,
wherein the transducer array is mounted flush with the inside wall of the pipe (3).

7. The ultrasonic flow sensor as recited in one of the preceding claims,
wherein the transducer array is mounted in the upper half or on the side of the pipe (3).

8. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the reflective surface (4) is a part of the inside wall of the pipe, the shape of the reflective surface not being modified in relation to other pipe sections.

9. The ultrasonic flow sensor as recited in one of the preceding Claims 1 through 7, wherein the reflective surface (4) is provided on a bulge of the inside wall of the pipe.

10. The ultrasonic flow sensor as recited in one of the preceding claims, wherein a screening device (11) is provided close to the reflective surface (4).

11. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the transducers (2a through 2n) of the transducer array (2) are activated in such a way that the wave (9) reflected on the reflective surface (4) impinges on the transducer array (2) in an essentially punctiform or linear manner.